DATE: October 14, 2019

AGENDA ITEM #2

TO: Environmental Commission

FROM: Callie Niday, Staff Liaison

SUBJECT: Herbicide Use in Los Altos City Parks

RECOMMENDATION:

Review and take action, as appropriate, on the current use of herbicides in Los Altos City parks

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BACKGROUND

At the regular meeting of August 14, 2019, the Parks and Recreation Commission (PARC) approved a motion to recommend to City Council the banning of the use of synthetic herbicides and synthetic pesticides in Los Altos parks. The PARC forwarded the August 14, 2019 commission's agenda report on "Herbicide Use in Los Altos City Parks" along with the other documents to the Environmental Commission to explore the banning of synthetic herbicides and synthetic pesticides in the City of Los Altos. At the regular meeting of September 9, 2019, Manny Hernandez, Municipal Services Director, gave a presentation to the Environmental Commission on the herbicide use in the Los Altos City parks. The Commission agreed to continue to evaluate and investigate the effects of synthetic pesticides and herbicides before continuing discussion and considering a recommendation to the PARC.

Like many Bay Area agencies, herbicides are used to control or eliminate unwanted vegetation in public parks, open spaces and other city-owned outdoor spaces. The City of Los Altos does not use Roundup; however, the current herbicide being used to control weeds is Ranger Pro. Ranger Pro contains 41% Glyphosate (same active ingredient as Roundup). This product is a complete broad spectrum non-selective post-emergent professional herbicide, approved and in compliance. Ranger Pro is generic for Roundup and is equivalent and just as effective as the name brand. This generic roundup will kill most weeds and grasses. Ranger Pro moves through the plant from the point of foliage contact to and into the root system. It is then absorbed into the soil and breaks down naturally, and therefore will not spread through the ground and kill neighboring plants.

Within the Municipal Services Department, the Park Maintenance Division makes efforts to avoid usage of herbicide around the public or common areas. Pathway spraying is done as early as 5am to allow drying prior to the arrival of park users. There are no public pathways through median landscapes. In addition, staff uses a diluted mix of Ranger Pro, a dilution of 2% with water. Application happens once a year, to target the weed explosion in the spring. Ranger Pro is applied along park pathways, City owned medians, and hardscape as needed. On direction from the County, Glyphosate herbicide is not used on the Foothill medians as it is owned by the County. Weeds in those areas are knocked down throughout the year. Several other "organic" herbicides and time-consuming

techniques, such as torching and use of vinegar, have not proven successful. Neighboring agencies have experienced the same.

Over the last few years, the City of Los Altos has severely cut back on the usage of Glyphosate herbicides in parks and medians by limiting where they are used and when the public is least present. A move completely away from the use of Glyphosate products will have aesthetic implications in the parks and medians.

The City is currently mandated by the Santa Clara Valley Urban Runoff Pollution Prevention Program through a Municipal Regional Permit to maintain an Integrated Pest Management Program that mandates minimal herbicide use. The City is currently in compliance. The current Integrated Pest Management Policy prohibits the use of pesticides for pest control.

Staff reached out to surrounding agencies and below is a summary of the information received from six neighboring agencies on their weed control practices.

Redwood City:

Redwood City uses pre-emergent treatment twice per year (Cool/Warm). The herbicides they have used since stopping the use of Glyphosates include:
• Scythe- not found to be effective in recycled water or high salinity soils areas, stopped use.
• Avenger Organic- not found to be effective at all.
• Fiestas Organic- used for a long time, not super effective but some staff like it for very specific uses so we keep it.
• Finale- Was effective, new main product, then they didn't re-register it for use in California. (Tons of So Cal cities switched to it also)

Atherton:
Atherton currently uses Roundup on non-turf areas. However, in the coming weeks Council will discuss discontinued use of it. If they approve and it is discontinued, Atherton proposes to use Mirimichi or Reward. When using Roundup, Atherton applied it 5 times a year (3 applications over 3 days) in the early morning and close off sections until dry. The City has not used herbicides on turf areas for a few years now. The City only has one 22-acre park so it may be easier for the City to control weeds. The focus is to keep the turf healthy. The City dethatches once a year, aerates twice a year and fertilizes every 3 months with a seasonal fertilizer. When the City gets Clover, it uses nitrogen. The City has well water and keeps the turf areas well irrigated.

Sunnyvale:
Sunnyvale has not banned the use of Roundup or Glyphosate derivatives. It is still legal use in California. CA DPR, CA EPA, and the US EPA still has listed it as a legal product to use. Sunnyvale has been looking into alternatives because Baylands Park is a 177-acre Santa Clara County park and the county banned the use of Glyphosate on all county owned facilities last fall.

The City is trying an alternative which is Glufosinate-ammonium, trade name of the product we use is Lifeline Herbicide. Its mode of action is like Glyphosate in the it is an enzyme blocker of an amino acid synthesis pathway. The amino acid synthesis blocked by Glyphosate is more effective than Glufosinate-ammonium enzyme action. Because of the stigma of the most recent litigation many

agencies are banning its use just to avoid any potential litigation that could arise. So far Glufosinate-ammonium has not been linked to any cancers.
Currently the City does not have any hard data on its use. The first use of Lifeline Herbicide has been at Baylands Park. The City has just started using it. Some City staff are experimenting with Lifeline Herbicide at other parks and open space facilities but for the most part most the staff still uses tried and true Roundup.

Foster City:
Foster City stopped using Roundup last year, but continued to use Ranger Pro. The City has since stopped using both products and has just started using Lifeline mixed with Magnify (surfactant). As a result, the City started applying this last week. Foster City has limited to spraying windows due to what seems to be never-ending winds. The City also uses Reward when necessary as well as some broadleaf chemicals such as Speedzone and Turflon. The City has also increased the usage of Surflan for pre-emergent control. It has had mixed results with this, especially in areas where the City has done a lot of mulching.

San Mateo County Parks:
San Mateo County currently uses a Glyphosate herbicide but are stopping use once the product on hand is used up, which will be by December 2019 when the staff recommendation expires. The County has been using Finalsan with Oroboost as a surfactant. We also have recommendations for Gallery and Dimension, the results are somewhat comparable to Roundup but decreases staff time by mechanically removing weeds as well as Workers Comp claims for repetitive motion injuries. Glyphosate is really the optimum treatment choice since it is selective in what it treats. The others mentioned are not selective and have a warning label compared to a danger label on Roundup.

Santa Clara:
The County of Santa Clara stopped using Glyphosate last year in public areas. They were spraying Reward and tested a propane burner until something caught on fire. Currently, there are not using any organics.

DISCUSSION

Under the Community Development Department, the City of Los Altos Environmental Commission "shall have those powers and duties entrusted to it by the council from time to time and shall submit an annual report to the council. The Environmental Commission studies and makes recommendations to Council on issues that affect the natural and built environment in the city and the region. Additional duties include special projects as directed by the Council."

Should the PARC wish to further pursue this topic, it is recommended that the topic also be reviewed by the Environmental Commission, prior to being forwarded to the City Council.

Attachments:
A. Glyphosate General Fact Sheet
B. Pesticides Fact Sheet
C. IPM Infographic
D. Regional IPM Practices

General Fact Sheet

What is glyphosate?

Glyphosate is an herbicide. It is applied to the leaves of plants to kill both broadleaf plants and grasses. The sodium salt form of glyphosate is used to regulate plant growth and ripen specific crops.

Glyphosate was first registered for use in the U.S. in 1974. Glyphosate is one of the most widely used herbicides in the United States. People apply it in agriculture and forestry, on lawns and gardens, and for weeds in industrial areas. Some products containing glyphosate control aquatic plants.

What are some products that contain glyphosate?

Glyphosate comes in many forms, including an acid and several salts. These can be either solids or an amber-colored liquid. There are over 750 products containing glyphosate for sale in the United States.

Always **follow label instructions** and take steps to avoid exposure. If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 800-222-1222. If you wish to discuss a pesticide problem, please call 800-858-7378.

How does glyphosate work?

Glyphosate is a non-selective herbicide, meaning it will kill most plants. It prevents the plants from making certain proteins that are needed for plant growth. Glyphosate stops a specific enzyme pathway, the shikimic acid pathway. The shikimic acid pathway is necessary for plants and some microorganisms.

How might I be exposed to glyphosate?

You can be exposed to glyphosate if you get it on your skin, in your eyes or breathe it in when you are using it. You might swallow some glyphosate if you eat or smoke after applying it without washing your hands first. You may also be exposed if you touch plants that are still wet with spray. Glyphosate isn't likely to vaporize after it is sprayed.

What are some signs and symptoms from a brief exposure to glyphosate?

Pure glyphosate is low in toxicity, but products usually contain other ingredients that help the glyphosate get into the plants. The other ingredients in the product can make the product more toxic. Products containing glyphosate may cause eye or skin irritation. People who breathed in spray mist from products containing glyphosate felt irritation in their nose and throat. Swallowing products with glyphosate can cause increased saliva, burns in the mouth and throat, nausea, vomiting, and diarrhea. Fatalities have been reported in cases of intentional ingestion.

Pets may be at risk if they touch or eat plants that are still wet with spray from products containing glyphosate. Animals exposed to products with glyphosate may drool, vomit, have diarrhea, lose their appetite, or seem sleepy.

What happens to glyphosate when it enters the body?

In humans, glyphosate does not easily pass through the skin. Glyphosate that is absorbed or ingested will pass through the body relatively quickly. The vast majority of glyphosate leaves the body in urine and feces without being changed into another chemical.

Is glyphosate likely to contribute to the development of cancer?

Animal and human studies were evaluated by regulatory agencies in the USA, Canada, Japan, Australia, and the European Union, as well as the Joint Meeting on Pesticide Residues of the United Nations and World Health Organization (WHO). These agencies looked at cancer rates in humans and studies where laboratory animals were fed high doses of glyphosate. Based on these studies, they determined that glyphosate is not likely to be carcinogenic. However, a committee of scientists working for the International Agency for Research on Cancer of the WHO evaluated fewer studies and reported that glyphosate is probably carcinogenic.

Has anyone studied non-cancer effects from long-term exposure to glyphosate?

Long-term feeding studies in animals were assessed by the U.S. Environmental Protection Agency (EPA) and other regulatory authorities. Based on these evaluations, they found there is no evidence glyphosate is toxic to the nervous or immune systems. They also found it is not a developmental or reproductive toxin.

Are children more sensitive to glyphosate than adults?

As required by the Food Quality Protection Act, the EPA has determined that children are not more sensitive to glyphosate as compared to the general population.

What happens to glyphosate in the environment?

Glyphosate binds tightly to soil. It can persist in soil for up to 6 months depending on the climate and the type of soil it is in. Glyphosate is broken down by bacteria in the soil.

Glyphosate is not likely to get into groundwater because it binds tightly to soil. In one study, **half** the glyphosate in dead leaves broke down in 8 or 9 days. Another study found that some glyphosate was taken up by carrots and lettuce after the soil was treated with it.

Can glyphosate affect birds, fish, or other wildlife?

Pure glyphosate is low in toxicity to fish and wildlife, but some products containing glyphosate may be toxic because of the other ingredients in them. Glyphosate may affect fish and wildlife indirectly because killing the plants alters the animals' habitat.

Where can I get more information?

For more detailed information about glyphosate please visit the list of **referenced resources** or call the National Pesticide Information Center, Monday - Friday, between 8:00am - 12:00pm Pacific Time (11:00am - 3:00pm Eastern Time) at 800-858-7378 or visit us on the web at **npic.orst.edu**. NPIC provides objective, science-based answers to questions about pesticides.

Please cite as: Henderson, A. M.; Gervais, J. A.; Luukinen, B.; Buhl, K.; Stone, D.; Cross, A.; Jenkins, J. 2010. ***Glyphosate General Fact Sheet***; National Pesticide Information Center, Oregon State University Extension Services. http://npic.orst.edu/factsheets/glyphogen.html.

Date Reviewed: 2010; limited revisions made: March 2019

NPIC fact sheets are designed to answer questions that are commonly asked by the general public about pesticides that are regulated by the U.S. Environmental Protection Agency (U.S. EPA). This document is intended to be educational in nature and helpful to consumers for making decisions about pesticide use.

OSU Oregon State University

Related Topics:

Glyphosate Overview

Adjuvants

PDF Version

What are pests?

Learn about a pest

Identify a pest

Control a pest

Integrated Pest Management

What are pesticides?

Herbicides

Pesticides - What's my Risk?

Topic Fact Sheet

Introduction

Many times, non-chemical controls can be used to deal with pests. If you decide to use a pesticide, it is important to understand the risks associated with a specific product or treatment. No matter the treatment method, there is always some degree of risk associated with using a pesticide. Understanding the risk from specific pesticides can help you decide whether or not you want to use them, or help you choose between two different products.

Understanding pesticide risks

Many people believe that some pesticides are "safe," while others are "dangerous." Actually, all chemicals, including all pesticides, have the potential to be hazardous. Even products that are considered low in toxicity, natural, or organic can be hazardous if someone or something comes in contact with enough of the substance.

The toxicity of a pesticide, its **formulation**, and how much you touch, eat, or breathe in, are all important considerations. The likelihood of experiencing some health effect as a result of using a product is referred to as the **pesticide risk**. The risk of any pesticide use depends on which pesticide is used, how much pesticide is applied, how often the pesticide is applied, and who or what has contact with the pesticide.

Pesticide Risk:

Your risk from the use of pesticides depends on two things: the toxicity of the pesticide, and the amount of exposure. In other words,

Risk = Toxicity x Exposure

Toxicity can range from low to high, and can vary depending on the route of exposure. The pesticide Signal Word is a way to determine a pesticide's general level of toxicity.

Exposure takes place when a pesticide is breathed in, touches the skin, or gets eaten.

Pesticide exposure

The chance of developing a health problem from a pesticide depends on two things: the toxicity of the pesticide and the amount of **exposure**. In order for a pesticide to affect you, you must be exposed to the pesticide by some route such as eating it (ingestion), breathing it (inhalation), or getting it on your skin or in your eyes (dermal exposure).

Even if a very toxic pesticide is used near your home, the risk may still be low. If you are not

exposed to the pesticide, it can't harm you. In some cases, a pesticide can be used without people coming into contact with it at all.

Pesticide toxicity

To help people understand the toxicity of products, pesticides are classified in groups from low to high toxicity. Because the risk or chance of a problem depends on both the toxicity **and** the amount of exposure, even pesticides that are low in toxicity can be hazardous if the exposure is high. The **signal word** describes the toxicity of the pesticide.

How toxic is the pesticide I am using?

Pesticides may contain more than one ingredient, and each may have a different toxicity level. There are several ways to estimate to the toxicity of a pesticide. One easy way is to look at the **signal word**, which is an indicator of the toxicity of the product. Every registered pesticide will have the words CAUTION, WARNING, or DANGER on the label, and that word reflects the level of toxicity of the product. Products that say CAUTION are the lowest in toxicity, WARNING indicates medium toxicity products, and DANGER is found on the most toxic products. If you want to know the toxicity of a specific pesticide, call NPIC. We can help.

Some groups of people, such as the elderly, people with health conditions, those who are pregnant, and infants and children, could be more sensitive to a pesticide than other people. Sensitive populations can minimize their risks by reducing their exposure to pesticides, and by selecting less toxic pesticides or pest control measures that do not involve pesticides.

Putting it together: What's my risk?

Toxicity and exposure are the basis for the statement, "the dose makes the poison." Just as one aspirin is beneficial for occasional pain or to manage certain medical conditions, too much aspirin (taking a whole bottle in one sitting) would be very hazardous. As the amount of exposure or the toxicity of pesticide increases, so does the risk of a problem. The higher the toxicity of the pesticide and the more exposure occurs, the greater the chance that some hazardous effect will result.

If pesticides are being applied near you, try to find out some details about the application, such as where it is happening, how much area is being treated, and what is being applied. This will help you determine your risk. If you smell, taste or feel a

pesticide, then you may have been exposed to it. In some cases, exposure can happen even if you do not smell or taste the pesticide. Try to determine the route by which you might be exposed. It is important to consider the route of exposure, or how the pesticide may contact your body. The amount that actually enters the body may vary depending on pesticide and the route of exposure. Some pesticides may move into the body very easily after an exposure, whereas others will not.

If you have been exposed to a pesticide, take note of the situation in which it happened. The length of time the exposure occurred and how much of the substance actually gets on or in the body are important details in understanding the risk. If the pesticide is low in toxicity and you had a very limited exposure, the risk is low. If the pesticide is very toxic and you had a large exposure to it, then the risk is higher.

Minimizing the chance of a problem

To minimize your chance of having a problem from using a pesticide product, look for **ways to reduce your exposure** or choose a product with lower toxicity. Always read the entire **product label** and follow any instructions for using personal protective equipment, like gloves or goggles, which help reduce your exposure. Labels may also contain instruction such as how to ventilate or the length of time to avoid a treated area. For more information on how to lower your risk, call and talk to one of our pesticide specialists.

If you have questions about this, or any pesticide-related topic, please call NPIC at **800-858-7378** (8:00am - 12:00pm PST), or email at **npic@ace.orst.edu**.

Last updated April 11, 2012

NPIC fact sheets are designed to answer questions that are commonly asked by the general public about pesticides that are regulated by the U.S. Environmental Protection Agency (U.S. EPA). This document is intended to be educational in nature and helpful to consumers for making decisions about pesticide use.

OSU Oregon State University

Related Topics:

PDF Version

What are pests?

Learn about a pest

Identify a pest

Control a pest

Integrated Pest Management

Repellents

Rodenticides

Other types of pesticides

Disponible en español

Minimizing Pesticide Risks

Because "the dose makes the poison," someone may get sick from exposure to just about anything if their exposure is high enough. The **risk** of experiencing health problems from a pesticide depends on the **toxicity** of the pesticide and the amount of **exposure**. Even very low toxicity pesticides can be hazardous if too much is inhaled, gets on the skin, or is ingested. Minimizing the amount of pesticide used, selecting lower toxicity products and using protective equipment to minimize your exposure can all help to minimize the hazards associated with using pesticides.

Tips for Minimizing Pesticide Risks:

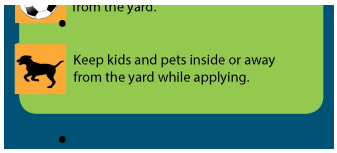
Consider adopting an **Integrated Pest Management (IPM)** approach. This approach emphasizes prevention, sanitation and exclusion, and utilizes pesticides only as a last resort when other options have failed.

Review the product **signal word** and **active ingredients**, and then choose the product lowest in toxicity. Call NPIC for help comparing products.

Choose products with formulations least likely to lead to exposure.

Read the **product label** first. The pesticide label will list the minimum amount of protective equipment, like gloves or goggles, necessary to reduce your exposure.

Consider using additional protective equipment to decrease your exposure even further.



Make sure the pesticide label lists the specific place you intend to use the product. Using a pesticide in unlisted locations is illegal and unsafe.

Use the appropriate amount of pesticide for your job by following the label directions closely. Applying too much pesticide may lead to higher levels of exposure to people, pets and the environment.

- Avoid allowing children, pets, or sensitive people in treatment areas to prevent accidental exposures during pesticide applications.
- Consider staying out of treated areas after an application for the amount of time listed on the label directions.
- For liquid products, consider avoiding treated areas until they have dried thoroughly and the area has been ventilated.
- Consider keeping pets and children off treated lawns and gardens until granular pesticides have dissolved.
- Ensure items such as food, toys, pet bowls and clothing are stored a safe distance away from any pesticide treatment.
- Remember **disinfectants** are pesticides, too! Always read and follow the label, even with products you've used before.

These are just a few general tips on how to minimize pesticide risks. One of our specialists can provide you custom-tailored advice on ways to minimize the risk of your particular situation. If you have questions, consider giving us a call at **1-800-858-7378** (8:00am - 12:00pm PST), or email us at **npic@ace.orst.edu**.

Additional Resources:

- **50 Ways to Treat Your Pesticide** - Pesticide Environmental Stewardship Program
- **EPA Citizen's Guide to Pest Control and Pesticide Safety** - Environmental Protection Agency (EPA)
- **Pesticides and the home, lawn, and garden** - Purdue University
- **Reduce your Child's Chances of Pesticide Poisoning** - Environmental Protection Agency (EPA)
- **Poison-Proof Your Home: One Room at a Time** - Environmental Protection Agency (EPA)
- **Reducing Pesticide Exposure in Schools** - National Institute for Occupational Safety and Health (NIOSH)
- **Reducing Human Pesticide Handling Risks** - National Ag Safety Database
- **Protecting Farm Families From Pesticide Exposures** - CropLife Foundation
- **Wear Protective Clothing When Applying Pesticides** - National Ag Safety Database
- **Are You Ready to Work?** - National Ag Safety Database

What is IPM?

Integrated Pest Management is a science-based approach that combines a variety of techniques. By studying their life cycles and how pests interact with the environment, IPM professionals can manage pests with the most current methods to improve management, lower costs, and reduce risks to people and the environment.

IPM tools include:

- Alter surroundings
- Add beneficial insects/ organisms
- Grow plants that resist pests
- Disrupt development of pest
- Prevention of pest problem developing
- Disrupt insect behaviors
- Use pesticides

1 IDENTIFY/ MONITOR

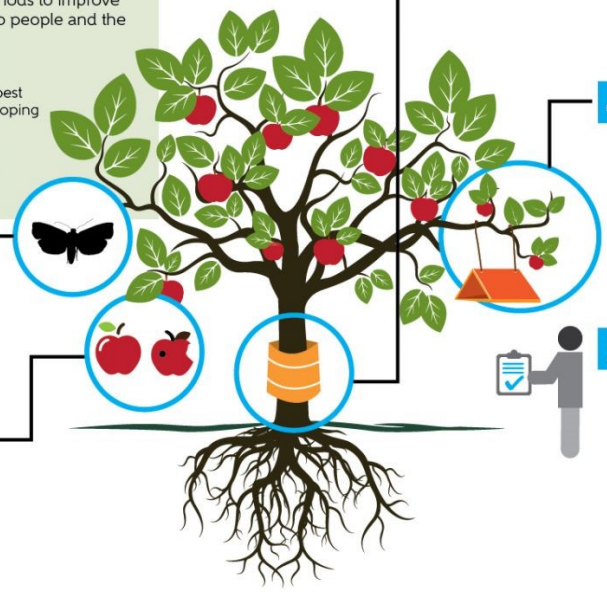
Determine the causal agent and its abundance (contact your local extension agent for help).

2 EVALUATE

The results from monitoring will help to answer the questions: Is the pest causing damage? Do we need to act? As pest numbers increase toward the economic threshold further treatments may be necessary.

3 PREVENT

Some pest problems can be prevented by using resistant plants, planting early, rotating crops, using barriers against climbing pests, sanitation, and sealing cracks in buildings.



4 ACTION

IPM uses multiple tools to reduce pests below an economically damaging level. A careful selection of preventive and curative treatments will reduce reliance on any one tactic and increase likelihood of success.

5 MONITOR

Continue to monitor the pest population. If it remains low or decreases, further treatments may not be necessary, but if it increases and exceeds the action threshold, another IPM tool should be used.

WHERE CAN YOU PRACTICE IPM?

Buildings and Homes:
Inspect, identify pests, keep pests out, clean to deny pests food and water, vacuum, trap, or use low-risk pesticides.

Farms:
Check for pests/pest damage regularly, identify accurately, choose pest-resistant plant varieties, encourage/introduce beneficial insects, time planting to avoid pests, and if needed use low-risk pesticides.

Managed Natural Systems:
Identify the pest and use management options that have minimal risks to pollinators, humans, and pets.

The Entomological Society of America is the largest organization in the world serving the needs of entomologists and other insect scientists. ESA stands as a resource for policymakers and the general public who seek to understand the importance and diversity of earth's most diverse life form—insects. Learn more at www.entsoc.org.

5.0 Permittee Specific Improvements and Enhancements

As described in Section 3.0 of this report, Permittees have been implementing pesticide toxicity control programs since 2003. The sections below summarize the improvements to IPM programs made by Permittees in the preceding five years, and enhancements that are planned in the subsequent permit term.

5.1. City of Campbell

Improvements to IPM Practices in the Last Five Years

The City of Campbell used to spray herbicides on bare ground to remove weeds in recreational areas. To create pesticide-free parks, the City now places three inches of mulch over bare areas. In addition, the City replaced cool-season grasses with warm-season Bermuda grass in athletic fields and converted a number of large areas from turf to a xeriscape. The aggressive growth and drought tolerance of the warm-season grass does not allow weeds to germinate. All of the City's park maintenance staff completed the Bay-Friendly Training which includes thorough training on IPM practices.

Enhancements to IPM Practices Planned for the Next Permit Term

In the next permit term, the City of Campbell plans to expand the practice of mulching bare ground in areas outside of parks to eliminate the use of pesticides at more sites. The City also plans to enhance staff trainings with information on IPM, use microorganisms to improve soil health, and capture and relocate honey bees instead of killing them.

5.2. City of Cupertino

Improvements to IPM Practices in the Last Five Years

The City of Cupertino annually evaluated IPM practices, and incorporated improvements or new methods. For example, the City increased use of mulch as weed inhibitor, transitioned to drought-tolerant landscaping, used drip irrigation to curtail excessive watering of flower beds, trimmed back vegetation to curb Argentine ants, and removed fungus infected tree limbs to halt spread of disease. The City utilizes volunteers to assist in manual removal of invasive species.

The City began using the SCVURPPP Pesticide Tracking Excel Workbook to improve pesticide tracking. The City supported employees' attendance in IPM seminars at numerous conferences and online courses. At the City's annual IPM training, all participants discuss the trainings they have received, and bring new ideas to the table for implementation in the field.

Enhancements to IPM Practices Planned for the Next Permit Term

City staff performing landscape and tree maintenance are committed to continually expanding use of IPM methods and enhancing staff training. Through continued exposure to IPM seminars and knowledge gained from field trials, City staff plan on annual incremental improvements in IPM practices.

5.3. City of Los Altos

Improvements to IPM Practices in the Last Five Years

The City's IPM procedures were updated in 2017 to include the practice of mulching bare ground areas, and replacing turf with drought tolerant, low water need plants. In 2016, the City employed successful IPM practices from the City's orchards to create pesticide-free parks. These included replacing sprays with baits and traps, mulching, planting open areas with ground covers, and mechanical removal of weeds. Preventative practices employed included improved sanitation, and replacement of plants that required frequent pesticide application with native plants.

Enhancements to IPM Practices Planned for the Next Permit Term

The City plans to add effective rodent control practices to its IPM Policy and Standard Operating Procedures, and enforce trapping of rodents in buildings and parks. Los Altos also plans to expand the practice of mulching bare ground areas and the use of drought tolerant plants in the City's median strips. The City plans to increase supervision of contractors to ensure compliance with its IPM Policy.

5.4. Town of Los Altos Hills

Improvements to IPM Practices in the Last Five Years

The Town of Los Altos Hills monitored weeds and used manual removal and mulch for weed abatement. The Town aimed to use non-chemical strategies, and when a pest threshold was exceeded, used species-targeted pesticides rather than broadcast spray methods.

Enhancements to IPM Practices Planned for the Next Permit Term

In mid-2020, the Town plans to begin an update of its IPM Policy to include enhanced staff training on IPM. The Town plans to readopt the Policy by Council in the next permit term.

5.5. Town of Los Gatos

Improvements to IPM Practices in the Last Five Years

The Town of Los Gatos updated its Standard Operating Procedures for contractors managing pest control in the Town. The Town no longer sprays swarming bees and wasps, and instead relocates hives and traps wasps. In addition, the Town employs prevention practices such as careful sanitation and visual inspections. For example, picnic tables are washed regularly, trash cans are emptied frequently, and potential nesting sites in trees are closed with caulk. The Town also added IPM training to routine tailgate safety meetings.

Enhancements to IPM Practices Planned for the Next Permit Term

In the next permit term, the Town plans to continue the reduction of pesticides in parks and buildings through increased use of mechanical removal of pest vegetation and building pests. The Town plans to discontinue using pesticides on roadsides and public right-of-ways.

5.6. City of Milpitas

Improvements to IPM Practices in the Last Five Years

The City of Milpitas updated its SOPs in 2017 to include practices suggested by a contracted Pesticide Control Advisor (PCA). Staff regularly utilize non-chemical strategies such as monitoring, mowing weeds, mulching. The City also began requiring all contractors to submit monthly pest management reports. City staff also employ IPM practices for addressing pests; for example, a contractor was brought in to safely vacuum and relocate beehives on City property or right-of-ways. Additionally, the City identified opportunities for removing turf and replacing with native, drought tolerant plants including establishing a demonstration garden at the City's Fire Station 1. As an incentive to encourage staff training and on-going education, the City began offering a 4% pay increase to employees that have obtained a Qualified Applicator Certification (QAC) or Qualified Applicator License (QAL).

Enhancements to IPM Practices Planned for the Next Permit Term

City staff plans to review overall IPM implementation and identify areas for improvement in staff trainings and hiring practices for contractors that apply pesticides, and also plans to increase supervision of contractors. During the first two years of the next permit term, staff plans to review the City's IPM policies and practices and identify an action plan to implement improvements. City staff also plans to continue to look for more opportunities to replace turf with native, drought tolerant plantings.

5.7. City of Monte Sereno

Improvements to IPM Practices in the Last Five Years

The City of Monte Sereno implemented trapping of pests when necessary (e.g., gophers, flies), regular monitoring of pests, and use of an IPM-certified pest control contractor. The City removed turf in FY 2017/18 from the small landscaped area in front of City Hall, and installed drought-tolerant California native plants, which are more pest resistant.

Enhancements to IPM Practices Planned for the Next Permit Term

In the first half of the subsequent permit term, City staff plans to work with the West Valley Clean Water Program Authority to conduct IPM outreach to Monte Sereno residents.

5.8. City of Mountain View

Improvements to IPM Practices in the Last Five Years

The City of Mountain View has not used pesticides in parks in the last three years. To deter pests, the City used mulch and other practices that promoted the health of landscaping. The City started using organic products for weed control in parks and public facilities, but found the products unpredictable and not very effective in the cooler months. For a recent tussock moth outbreak, the City chose to only treat trees in high impact areas and used the least toxic effective product.

The City required all staff who apply pesticides to obtain and maintain the Qualified Applicator Certification (QAC). The process ensures that City staff receive IPM training through the required

continuing education. The City also provided annual trainings on IPM principals for staff. In FY 2015/16, the City revised the golf course contractor's agreement to ensure adherence to the City's IPM Policy.

Enhancements to IPM Practices Planned for the Next Permit Term

The City plans to evaluate the alternative organic products being used for weed control, and create guidelines for product selection. The City also plans to develop a program that incorporates pre-emergent herbicides and other products for the cooler months when organic products are not very effective.

The City plans to update its IPM Policy to include the use of organic products in medians and other area not presently pesticide free.

5.9. City of Palo Alto

Improvements to IPM Practices in the Last Five Years

The City of Palo Alto is in the midst of revising its IPM Policy and plans to have an updated Policy by June 2020. The City established 21 pesticide-free parks and facilities with mulch, replacement of plants that require frequent pesticide applications with native plants, baits and traps, removal of wasp nests instead of broadcast sprays, installation of door sweeps, and improved sanitation. The City updated its pesticide tracking system, though still sees room for improvement. The City established criteria for hiring and supervising contractors who may apply pesticides. Staff conducted spot checks, maintained ongoing communication and required contractors to provide annual reports on their IPM applications. Starting in 2016, City staff shadowed contractors to ensure the City's IPM Policies were followed. The City enhanced outreach to residents about pesticides as part of its annual outreach plan.

Enhancements to IPM Practices Planned for the Next Permit Term

The current pesticide tracking system is complicated, and the city plans to develop a new system during the next permit term. The City also plans to enhance its outreach to residents regarding IPM practices.

5.10. City of San Jose

Improvements to IPM Practices in the Last Five Years

The City of San Jose refined and expanded functions of its pesticide data entry and tracking portal for streamlining pesticide analysis and verifying the use of alternative treatments and IPM methods. The data entry portal is used by both City staff and external vendors.

The City continued with adaptation of an ongoing rodent management pilot to monitor and evaluate thresholds and appropriate best methods including limited use of Fumitoxin (phosphine gas), trapping, and Burrow-X (carbon monoxide smoke) to control ground squirrel and rodent populations. To help control small rodent populations naturally, the City used nest boxes to attract Barn owls to 13 City parks, two community gardens, a public high school, and the San José - Santa Clara Regional Wastewater Facility.

The City extended sustainable landscape retrofit efforts to five City Fire Stations and one public high school that now serve as sustainable landscaping demonstration areas for workshops and outreach events.

The City conducted outreach to professional pesticide applicators regarding non-toxic rodent management through the ReScape Qualified Maintenance Professional program, and presented information on sustainable landscaping basics to Groundsworkers and Maintenance Assistants through a training pilot program.

Enhancements to IPM Practices Planned for the Next Permit Term

The City's IPM SOPs and BMPs are contained in a living document that can be updated, as needed, to improve communication of new or changing IPM methods. The City plans to review the SOPs and BMPs to determine if enhancements to the document are needed. The pesticides tracking system may also be reviewed depending on revisions to City SOPs, BMPs, policies, and/or changes to federal list of banned pesticides. The Review of the SOPs and tracking system is planned for the first to second year of the next permit term.

5.11. City of Santa Clara

Improvements to IPM Practices in the Last Five Years

The City of Santa Clara updated its IPM policy to prohibit the use of products containing anticoagulants on City property. The City developed landscape plans that incorporated native plants, mulch in tree wells, and sheet mulching in plant beds to resist plant pests and naturally suppress weeds. The City employed good sanitation and removal of water sources for pest prevention, and used baits and traps to monitor pest populations. The City required all staff who apply pesticides to obtain a Qualified Applicator Certification (QAC) within the first year of employment and maintain the certification through continuing education. Staff training included the annual IPM training provided by the City, and seminars through a Pesticide Control Advisor (PAC) and professional organizations. Staff increased monitoring of contractor compliance through review of each pesticide control application to ensure it complied with the City’s IPM Policy.

Enhancements to IPM Practices Planned for the Next Permit Term

In the next permit term, the City plans to update its pesticide tracking system. To improve pesticide tracking, the Parks Division plans to include pest control applications by individual QAC holders as part of the standard Lucity work order system software.

5.12. City of Saratoga

Improvements to IPM Practices in the Last Five Years

To deter weeds, the City planted photinia along all fence lines, and contracted for a special mower to remove roadside weeds.

The City also ceased glyphosate application in City parks, passed those restrictions on to contractors, and employed more staff to more diligently monitor contractor applications. The City purchased easier-to-clean plastic picnic tables and cleaned them weekly to deter wasps and ants.

The City implemented sanitation BMPs in City facilities to deter ants and other insects. BMPs include nightly housekeeping and trash removal and conducting cleanups immediately after all rental events and parties. Staff conducted walk-around inspections of buildings, and if any pest issues were noticed indoors, gaps/openings which might allow pest access were immediately sealed.

The City increased the number of staff receiving IPM training over the past five years, and the facilities supervisor and lead worker attended online EPA IPM seminars.

Enhancements to IPM Practices Planned for the Next Permit Term

As organic pesticides become more common, effective and affordable, the City plans to increase areas that are glyphosate free. The City plans to continue to require staff and contractors to explore and implement new IPM practices.

5.13. City of Sunnyvale

Improvements to IPM Practices in the Last Five Years

City staff inspected sites that are maintained by a contractor to ensure that pesticides are used only as a last resort. The City updated its pesticide tracking system with the SCVURPPP Pesticide Tracking Worksheet. Trainings on IPM for parks, sewer, and streets staff were enhanced with training materials on current practices, data on applied amounts, and highlighted pesticides of concern.

The City conducted extensive outreach to residents on IPM. During FY 2017/18, the IPM outreach was conducted at 42 events and through 14 informative social media posts, movie theater ads and emails. During FY 2018/19, outreach was conducted at 31 events and via 36 informative social media posts, movie theater ads and emails.

Enhancements to IPM Practices Planned for the Next Permit Term

The City plans to update the pesticide tracking system yearly to ensure that it; (a) reflects up-to-date pesticides of concern used by the City; and (b) maintains formula accuracy. The City also plans to enhance staff trainings on IPM by increasing the number of training events, such as department tailgates and continued annual trainings.

5.14. County of Santa Clara

Through a combination of innovation, sustainable culture, and operational policy, the County of Santa Clara has been able to significantly reduce pesticide applications.

- The County operated 27 out of 29 parks pesticide free in FY 2018-19. Up from 21 in 2015, and only 15 parks in 2005.
- During the past five years the County has averaged only 245 acres of roadside under chemical vegetation management, compared to an average of over 2,100 acres in 2005.

- Pesticide applications in and around County airports, structures, and urban turf and landscapes in the past five years have been all but eliminated.
- Pursuant to the County IPM ordinance, the addition of Glyphosate to the California Proposition 65 list has prompted the product's removal from the County's list of approved pesticides. Existing stocks of this herbicide have been depleted and no further use will be approved.

The County uses a variety of non-chemical practices including: cattle and goat grazing in creek corridors, installation of weed fabric, manual removal of weeds, mowing, disking, conversion of lawn and turf to landscaping with native plants, barn owl nesting boxes, burrow collapsing, canine early detection of bed bugs followed by vacuuming and steaming, vertebrate trapping, fungal infection of cockroaches, and proper sanitation, maintenance and housekeeping.

The County leased one park to an organic farm, which showcases IPM practices through various events, tours, and programs. Visitors learn the importance of soil health and optimum biological activity to promote plant vitality and pest resistance, along with the augmentation of beneficial bugs to prevent, suppress, or control pests. The farm employs mechanical methods with both hand weeding and handheld flame weeders, as well as tractor-mounted flamers and insect vacuums.

In 2017, the County established a website to educate the community on sustainable landscape design, implementation, and maintenance. The site includes how to select the right plant for a specific location, and where to purchase native plants locally.

Enhancements to IPM Practices Planned for the Next Permit Term

The County plans to focus on researching least-toxic products and practices to control roadside vegetation in areas where mechanical vegetation control is precluded due to terrain conditions and traffic hazards, a critical need for wildfire prevention.

The County also plans on implementing an IPM spatial monitoring and data collection software to collect and analyze IPM data to be more proactive in pest management decisions.

5.15. Santa Clara Valley Water District (Valley Water)

Improvements to IPM Practices in the Last Five Years

Valley Water made the following improvements to its IPM program:

- Updated both its Pesticide Policy and the Approved Pesticide list in 2018. One significant change was limiting the use of pesticides to only caution label products.
- Increased use of goat grazing, evaluated aquatic herbicide applications to ensure minimal herbicide usage by coordinating hand removal activities prior to chemical treatments, and tested and investigated new herbicide products.
- Updated its pesticide tracking system to be able to track treatments, products, gallons, target pests, IPM strategies and other pertinent comments specific to each treatment site.
- Enhanced staff trainings with inclusion of topics such as plant identification and calibration, in addition to label and Safety Data Sheets training. Valley Water is designing new trainings on IPM for staff for implementation in fall 2019.

- Prepared fact sheets for residents on topics such as Valley Water's invasive plant management program, and use of glyphosate products.
- Hosted quarterly weed management area meetings at Valley Water Vegetation Field Operations facility.
- Ensured that Valley Water's Pesticide Control Advisor (PCA) attended quarterly Santa Clara County IPM TAG meetings.
- Required that contractors performing any vegetation work for Vegetation Field Operations (VFO) are supervised by Valley Water maintenance staff. VFO also controls all herbicide products, mixing, loading and application.
- Created a new position to oversee tracking of the invasive plant management program and increased monitoring of post herbicide efficacy on invasive plants.

Enhancements to IPM Practices Planned for the Next Permit Term

Valley Water plans to make the following improvements to its pesticide program:

- As necessary, modify the Approved Pesticide List as new products that meet the Pesticide Policy become available.
- Expand the use of mulches and increase grazing in summer of 2020.
- Improve outreach to residents by sending project specific notices for invasive plant management work each summer.

Valley Water is designing a program to evaluate efficacy of various herbicide treatments on *Arundo donax*, and plans to implement the program in spring of 2020.

6.0 CONCLUSIONS

Through the development of this pesticide source control effectiveness evaluation report, SCVURPPP and is Permittees agencies have complied with the requirements in MRP Provision C.9.g by:

- Evaluating the effectiveness of pesticide source control measures implemented;
- Evaluating the attainment of TMDL/WQAS pesticide concentration and toxicity targets for water and sediment.
- Describing the improvements to Permittee IPM programs in the last five years; and
- Describing the improvements planned during the next Permit term.

This section summarizes the conclusions of the evaluation, including source control measures that SCVURPPP and its Permittee agencies should continue to implement and potential enhancements to assist in achieving targets for pesticide concentrations and pesticide-related toxicity in Santa Clara Valley urban creeks.

6.1. Summary of Implementation Assessment Outcomes (Levels 1 - 4)

SCVURPPP Permittee agencies have successfully implemented a number of source control measures consistent with Provision C.9 of the MRP and the TMDL/WQAS implementation plan (see Section 3.2). For example, the following Level 1 through 4 outcomes have been achieved as a result of control measure implementation:

- All SCVURPPP permittee agencies have adopted IPM policies/ordinances and established pesticide application SOPs. All municipal staff that apply pesticides receive training on the IPM policy. IPM Policies and pesticide programs have led to an increase in awareness about pesticide impacts and a change in behavior by municipal employees and contractors. SCVURPPP permittee agencies are either not using pesticides of concern, or using them in minimal quantities, and only as a last resort.
- All permittee agencies that use contractors to apply pesticides have contract specifications in place that require contractors to follow the IPM Policy and implement IPM.
- SCVURPPP agencies are working with the County HHW Program to ensure that adequate pesticide disposal services are available to all residents. For example, in both FY 16-17 and FY 17-18, the HHW Program managed more than 300,000 pounds of liquid and solid poisons (including pesticides) per year.
- SCVURPPP implements the OWOW Program in local retail stores and nurseries to provide less-toxic pest control information to residents at the point of purchase. From FY 13-14 through FY 17-18, SCVURPPP sponsored 55 store employee trainings and trained 488 employees. The willingness of store managers to participate in the OWOW Program and send employees to trainings reflects the changing attitude of pesticide sellers toward IPM and the use of less-toxic pest control methods. Regional OWOW Program leaders report an overall increase in sales of less toxic products as a result of the OWOW Program's implementation.
- SCVURPPP's various efforts to educate residents about pesticides and IPM, including media advertising, website postings and distribution of outreach materials at events, raise awareness among residences and lead to increased use of IPM and decreased use of toxic pesticides. Information on less-toxic pest control is posted on the Watershed Watch Campaign website (www.MyWatershedWatch.org).
- SCVURPPP is continuing to educate pest control professionals on IPM and water quality issues by sending them informational letters and publishing articles in the Department of Agriculture's newsletter.
- From FY 13-14 to FY 18-19, a total of 108 individuals completed the Basic Green Gardener Training and learned sustainable landscaping practices, including IPM, which they can implement at their client sites.
- As a result of SCVURPPP and Permittee efforts to reduce pesticide use at new development and redevelopment sites, project developer behavior is changing and resulting in an increase in the number of development projects that use "beneficial landscaping" techniques that minimize pesticides, fertilizers, irrigation, and runoff. In FY 13-14, only 49% of approved regulated projects

included “beneficial landscaping”, compared to 77% in FY 17-18. These data suggest that Program and Permittee efforts are reducing the potential for water quality impacts attributable to pesticide usage at new development and redevelopment projects.

- All permittees have made significant improvements to their IPM programs in the last five years. Figure 6-1 shows an overview of the types of improvements made, and the number of Permittee agencies that made these improvements. Most commonly reported by Permittees was improving their pest management practices to incorporate IPM, followed by enhancing staff trainings on IPM and updating IPM Policies/SOPs.

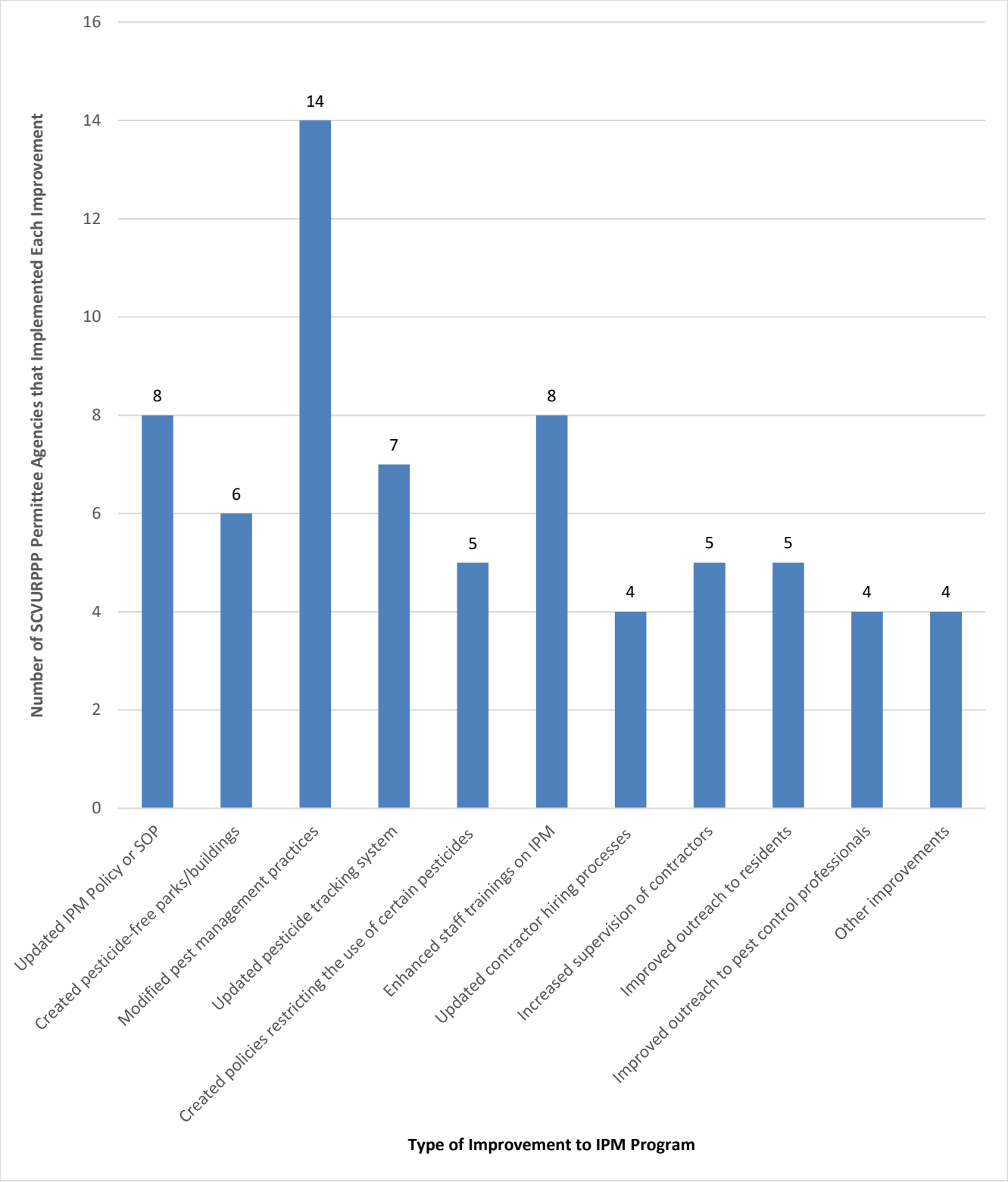


Figure 6-1. Summary of Improvements Made to SCVURPPP Permittee IPM Programs from FY 13-14 to FY 18-19.